

metal films by discharging the solvent through at least one opening of the patterned metal film when heat is applied to the flexible wiring board, as recited in independent claim 14.

Instead, Odaira discloses a glass-cloth reinforced epoxy resin sheet layer 4' which are superimposed together so as to form a laminate between two copper patterns 3 and 3'. The laminate is heated until it is plastic deformed and pressed with a pressure of 0.5 mpa which causes cone shaped conductor bumps 2' between the copper patterns 3 and 3' to push and pierce into the laminate. See, for example, col. 11, lines 1-47. See also Figs. 16A and 16B. However, Odaira fails to disclose or suggest a the resin film is thermally shrinkable to press the bumps against the at least adjacent two patterned metal films by discharging the solvent through at least one opening of the patterned metal film when heat is applied to the flexible wiring board.

Schmidt fails to compensate for the above-noted deficiencies of Odaira. Schmidt discloses a method for a heating conductive foil 1, 10 using adhesive foil 5, such as epoxy, acrylic or polyimide resin, where the steps include pressing the conductor foil 1, 10 together in a heating press. Schmidt fails to disclose or suggest the adhesive foil 5 includes a solvent. Furthermore, if moisture is released by the adhesive foil 5, then it is not possible to release the moisture from the adhesive foil 5, because both surfaces of the adhesive foil 5 are covered by conductive foils 1, 10 that have no openings. See, for example, Figs. 2f and 2g.

Furthermore, for reasons as stated above with respect to Odaira and Schmidt, these references fail to disclose or suggest means for pressing the at least one bump against at least one of the first and second metal films by shrinking when heat is applied to the flexible wiring board, as recited in independent claim 19.

Accordingly, for reasons as stated in the Amendment filed on April 2, 2003, as well as those stated above, Applicants respectfully submit that claims 14 and 19 define patentable subject matter. Claims 15-18 depend from independent claim 14, and therefore also define

patentable subject matter. Accordingly, favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,


James A. Oliff
Registration No. 27,075

Yong S. Choi
Registration No. 43,324

JAO:YSC/cfr

Attachment:
Appendix

Date: May 6, 2003

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
--